

**SPECIAL REPORT**

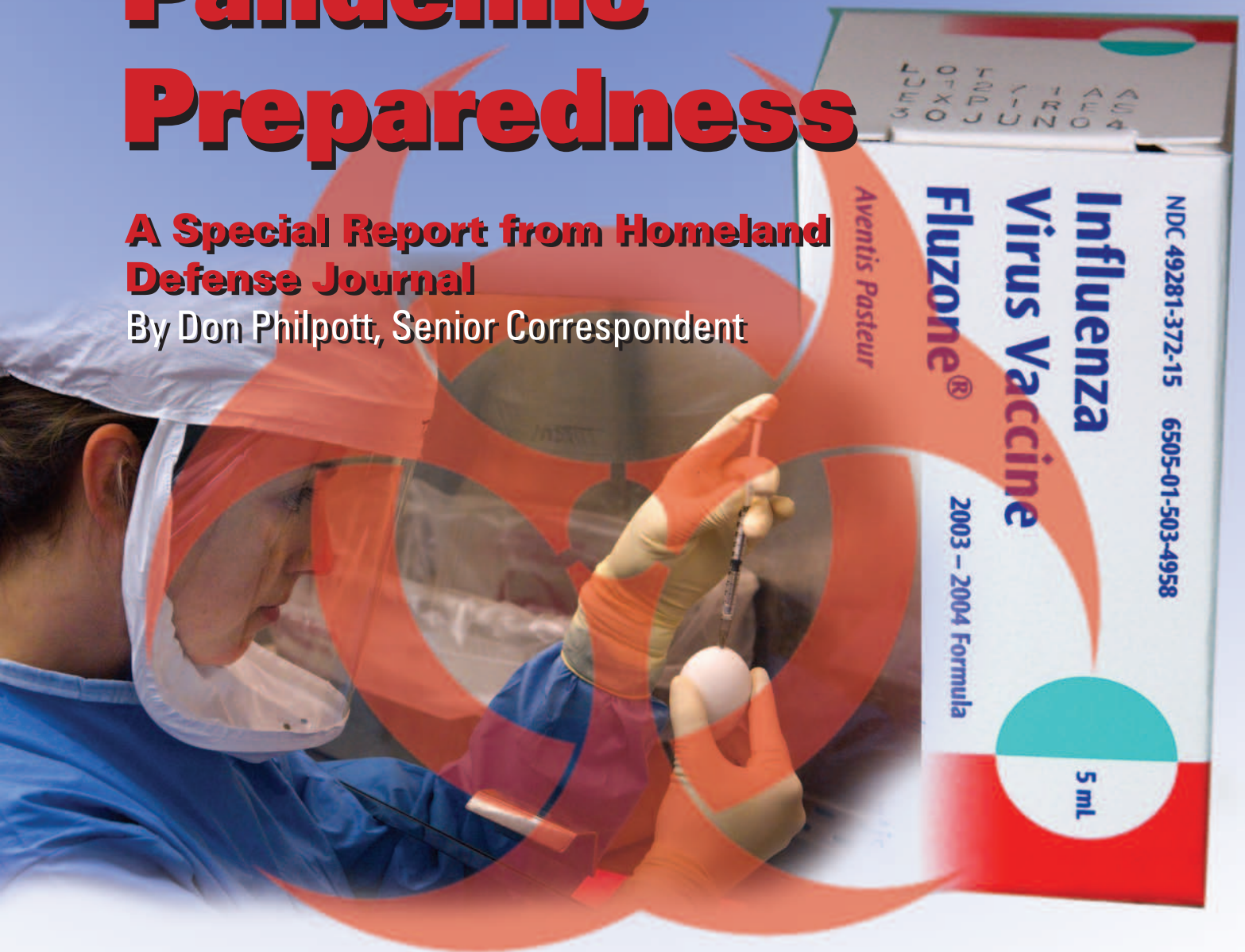
# Homeland Defense

J O U R N A L

## Pandemic Preparedness

**A Special Report from Homeland  
Defense Journal**

By Don Philpott, Senior Correspondent



**SPECIAL REPORT**



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To: The State and Local Homeland Security and Public Health Communities

*The Homeland Defense Journal* is proud to present our Special Report on Pandemic Readiness.

Medical aspects of homeland security is an ongoing topic in the *Homeland Defense Journal* magazine, training courses, conferences and ongoing research.

*The Homeland Defense Journal* has been reporting on medical response to terrorism and natural pandemics since March 2002. At that time, we ran a three-part series on Miami-Dade County's development of its bio response plan due to their experience with anthrax. We posted the series at our Web site and it was downloaded more than 150,000 times. This was clearly a demonstration of need and interest across America, as local communities sought practical, hands-on information that they can apply in their community or state.

Since those early articles back in March 2002, we have produced more than 17 major features on all aspects of medical planning and readiness. (Copies of all past medical feature articles are available at our Web site for your reference.)

We added a mass casualty planning executive to our editorial board in early 2005 and began reporting then on the need for improved planning and readiness in the event of a mass casualty event.

In 2004 and 2005 we began a series of conferences and training courses on medical mass casualty planning. State and local emergency management, medical, public health and fire leaders representing every state in America have attended our courses. In March 2006, we will again hold our annual conference on Medical Aspects of Mass Casualty Planning with medical manufacturers and medical supply companies joined with leading federal, state and local leaders passing important information on needs, outlook and planning for mass casualty events.

Once again, we saw a need to inform not only on planning guidelines but also sources of funding to assist state and local leaders as they develop, train and exercise their plans and begin purchases of key medical supplies as defined in their plans. It was for this reason that we teamed with our business partner, INPUT, for research and present to you this Grants Handbook: Homeland Defense Journal's Special Report on Pandemic Readiness. INPUT maintains the leading database of grants information and generously shared their data with us for this project. If your community would like more information on INPUT and their excellent grants product, please go to [www.input.com](http://www.input.com) for additional information.

This Special Report and Survey was researched and written by Don Philpott, *Homeland Defense Journal's* senior correspondent, who is also an internationally recognized journalist with more than 20 years with Reuters News Service. Don is a valuable member of our editorial staff, having researched and written the first Special Report on Pandemic Readiness and many of the leading feature stories that have appeared in our magazine.

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We hope your organization will find this Special Report and Survey findings to be of value. Please feel free to contact me directly with any questions or comments.

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# Pandemic Preparedness

A Special Report from Homeland Defense Journal

By Don Philpott, Senior Correspondent

**The Approaching Pandemic.** Health officials across the country are scrambling to complete plans to cope with a flu pandemic that threatens to kill tens of millions of people globally.

Cases of avian or bird flu have steadily spread from the Far East to Africa, the Middle East and Europe. It is only a question of time before the disease reaches North America.

Although there is no evidence that the disease has yet mutated into a form that can be easily transmitted among humans, recently it has been discovered in Europe in domestic and wild animals — the first indications that it has jumped from one species to another. This particular influenza strain is also particularly virulent. As of March 8, 2006, there have been 175 human cases reported to the World Health Organization (WHO) with 96 deaths — a fatality rate of almost 55 percent.

## Confirmed Human Cases of Avian Influenza Reported to WHO, as of March 8, 2006

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Cambodia	0	0	0	0	4	4	0	0	4	4
China	0	0	0	0	8	5	7	5	15	10
Indonesia	0	0	0	0	17	11	10	9	27	20
Iraq	0	0	0	0	0	0	2	2	2	2
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	31	20	175	96

Source: Centers for Disease Control and Prevention

Health officials worldwide warn that it is not a question of whether there is going to be a killer pandemic but when. There is every likelihood that the first case in the United States will be reported within the next few weeks or months. If the disease mutates into a virulent human flu strain, it will spread quickly through the population.

It is almost impossible to stop the disease from spreading because hundreds of millions of migrating birds around the world could be carrying it from country to country. Travelers coming home from trips abroad, unaware that they had been infected, could unwittingly bring the flu virus into United States. Also, avian flu has been reported in Iraq, raising concerns that returning troops could bring it back to the United States.

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According to the World Health Organization, a flu pandemic could kill 1 billion people worldwide. In addition, the Centers for Disease Control and Prevention estimates as many as 734,000 people in the United States could be hospitalized, leading to more than 207,000 deaths and an economic cost of \$167 billion.

In November 2005, the Bush administration warned the nation to prepare for a flu pandemic and instructed every state to develop a pandemic preparedness plan. However, a state-by-state survey conducted by *Homeland Defense Journal* has found that while almost three-quarters of states have pandemic preparedness plans that are either complete or nearing completion, those plans vary drastically in the amount of detail offered, and officials throughout the nation are concerned that large private sector employers are not prepared to deal with a major public health crisis.

Of the 73 percent of states that said they had a pandemic preparedness plan, only 22 percent said their plans were complete and 51 percent said their plans were “nearing completion.” In every case, officials stressed that the plans were “living” documents that are reviewed regularly.

But there are gaps at the state and local level. Although the majority of states said their plans included lists of required equipment and supplies, there is little standardization from state to state. Some states provide very detailed lists while a few offer no details at all at this stage. Most states (87 percent) said their plans detail specific sites where the public can be treated in the event of a pandemic. However, 13 percent of states said their plans would not detail this information at this time for security reasons although the public would be told when necessary. In addition, although most states plan to stockpile equipment and supplies, the *Homeland Defense Journal* survey revealed a significant difference in opinion as to what equipment and supplies should be stockpiled.

Perhaps more important, all states (100 percent) said large employers in their states were not prepared to handle a pandemic. According to state survey respondents, almost half (49 percent) of all companies are “not very prepared,” 44 percent are “somewhat prepared” and 7 percent are “not prepared at all.”

All respondents said they are seeking pandemic preparedness funding or grants from the Department of Health and Human Services (HHS). Many states said they have specific activities planned for this funding, while several others said they were not clear what funding was available and are still seeking guidance from the federal government on how the grant money can be used.

Most states (91 percent) said their plans list the equipment and supplies they would need to prepare for and manage the pandemic. However, 15 percent of states said

they had not been told what equipment and supplies might be available from the federal government while 10 percent said they were unaware that the federal government might be offering equipment and supplies. At least 10 percent said they did not think they would receive anything from the government. [For more information on federal medical grant programs, see Homeland Defense Journal's Guide to Medical Grants: Funding for Supplies, Equipment & Training, March 2006].

### ***Planning Is Critical***

At a recent statewide pandemic preparedness summit in Florida, Gov. Jeb Bush and senior health and emergency management officials looked at worst-case scenarios. They concluded:

- Hospitals would be overwhelmed.
- One-third of all emergency personnel and first responders could fall ill.
- Schools and daycare centers would be closed — perhaps for several months.
- Theaters, sports arenas and public meeting places would be closed.
- Church services would be cancelled.
- Trash pick up and mail delivery would be disrupted.
- Electrical power and water supplies could be disrupted.
- Essential supplies — food, medicines, gas and cash — would be in short supply or unavailable.
- As much as 30 to 50 percent of the general workforce could be sick at any one time, with others staying home to look after them.
- Travel restrictions and quarantines would be imposed.
- Morticians would be overwhelmed and the process of burying the dead may be particularly challenging.

Gov. Bush warned that Florida — the tourism capital of the world — was particularly vulnerable because of the high number of visitors who arrive from all over the world.

“Families and individuals need to make basic plans and educate themselves on the flu so they will be able to avoid pandemic panic,” he said. “People should have canned foods, water and other necessities, such as first-aid supplies. They should think about how they would live if a widespread flu outbreak kept them from working for weeks.”

Florida is typical of most states in that it has been working on a preparedness plan for many years. Dr. Bonita Sorensen, deputy state health officer, said, “I would say we are very prepared — maybe 80 or 85 percent of the way there. Of course, it's that last 15 percent or so that's most challenging that we still need to work on.”



### ***The Strategic National Stockpile (SNS)***

The SNS is a national repository of antibiotics, chemical antidotes, antitoxins, various pharmaceuticals and other medical supplies and equipment to be used in the event of a terrorist attack or major natural disaster. The stockpile is kept in 12 undisclosed locations throughout the United States containing “12-hour push packages” of materials, which are supposed to be able to be delivered anywhere in the United States within 12 hours. There is a “vendor-managed inventory” component to the SNS, where some manufacturers maintain control of the SNS supplies. Some of the contents of the stockpile include:

- Smallpox vaccine for the entire U.S. population
- “Millions” of doses of countermeasures against anthrax, plague and tularemia
- Botulinum antitoxin (which the Department of Defense started stockpiling in the early 1990s)
- Countermeasures to address radiation exposure (including diethylenetriaminepentaacetate [DTPA] and Prussian Blue)
- Potassium iodide, which protects the thyroid from radioactive iodide
- Over one million doses of the licensed anthrax vaccine (with more ordered)

The stockpile, which is considered a “federal asset,” is managed by HHS in coordination with the U.S. Department of Homeland Security (DHS). The SNS is operated out of CDC. Governors, the president, or, in some cases, state health officers can request deployment of the SNS. The federal responsibility is to deliver the medical supplies to states, which then have the responsibility of distributing the materials to their citizens. A handful of federal technical advisers help advise local authorities, but otherwise the distribution and administration of the SNS becomes the responsibility of the states and localities.

HHS Secretary Michael Leavitt emphasizes that “the reality is that local preparation is the foundation of the response to a deadly flu outbreak. Any community that fails to prepare with the idea that somehow, in the end, the federal government will be able to rescue them will be tragically wrong.

“Coordination at the state and local level is critical and pandemic planning needs to go beyond public health,” he continued. “It needs to address how schools, businesses, public agencies and others participate in pandemic preparedness.”

### ***What Is Being Done***

On Nov. 2, 2005, HHS released its Pandemic Influenza Plan aimed at creating a seamless network of federal, state and local preparedness. It set out the federal government’s pandemic responsibilities and provided guidance to state and local partners on the measures they need to take to prepare the nation’s health care system for a pandemic.

Most states are looking to the federal government to provide vaccines, although everyone agrees there will not be enough to go around. States are also hoping that the federal government will provide antivirals and release medical supplies and equipment from the Strategic National Stockpile (SNS).

On March 1, 2006, HHS announced that it has ordered an additional 14.5 million doses of antiviral drugs. The SNS already has purchased 5.5 million doses of antiviral drugs. The HHS goal is to acquire enough antiviral drugs to treat 25 percent of the U.S. population. During the 2004-5 flu season, U.S. authorities had only enough shots for half the at-risk population.

At a recent conference of avian flu experts, Dr. Julie L. Gerberding, director of the U.S. Centers for Disease Control and Prevention (CDC), said the nation’s strategy was one of “buying time” until millions of doses of vaccines and antiviral drugs could be produced. “If we prepare now, we may be able to decrease the death rate and keep society functioning,” she said.

However, there are many positive steps being taken. As a result of the terrorist attacks on Sept. 11, 2001, and the anthrax scare, the SNS, which has warehouses in many states, stored antibiotics, disinfectants, intravenous hookups and other emergency supplies on rolling pallets and developed plans to deliver those supplies within 12 hours.

And half the WHO’s stockpile of the antiviral drug oseltamivir (Tamiflu) — expected to total 3 million doses by May — is to be stored in the United States. The Department of Veterans Affairs also has 500,000 doses. But the federal government wants 81 million doses, said Dr. Anthony S. Fauci, director of the National Institute of Allergy and Infectious Diseases.

New York City has taken several steps to prepare. There are thousands of syringes

boxed for rapid deployment. The city also printed multilingual posters instructing citizens to cover their mouths when they cough.

### ***What Needs To Be Done***

Many health authorities say that while they may have a plan in place, it could be many months or even longer before they are ready to cope with a pandemic. Lack of funding and manpower are cited as the main reasons for this. Most health authorities already have major budget shortfalls.

Photo by Dan Verton

On Nov. 1, 2005, President Bush asked Congress for \$7.1 billion in emergency funding to prepare the country for a possible flu pandemic. Of this, \$1.2 billion would be earmarked to buy enough bird flu vaccine for 20 million people, \$1 billion to stockpile antiviral drugs, \$2.8 billion to fund a crash program to speed up vaccine production, and \$100 million for state and local preparedness planning.

On Dec. 19, 2005, the U.S. House of Representatives approved \$3.8 billion in funds for pandemic influenza preparedness — almost half of what the president had requested. Of this, only \$350 million was allocated to local health departments.



“That \$350 million sounds like a lot, but divided among the 5,000 health departments nationwide, it’s only \$70,000 each,” said Dr. Jeffrey S. Duchin, chief of communicable diseases for the Seattle and King County Health Department.

Although mallards and geese are known carriers, all known human infections to date have come from infected chickens that were handled by factory workers.

Preparedness planning involves many people and occupies many hours of meetings. This funding will not even cover the cost of producing a plan. It will certainly not help states develop essential stockpiles, or cover the cost of expensive items such as ventilators, which can cost \$30,000 each. There are no funds for exercises to simulate pandemic-specific responses, such as converting schools to hospitals or quarantining entire neighborhoods.

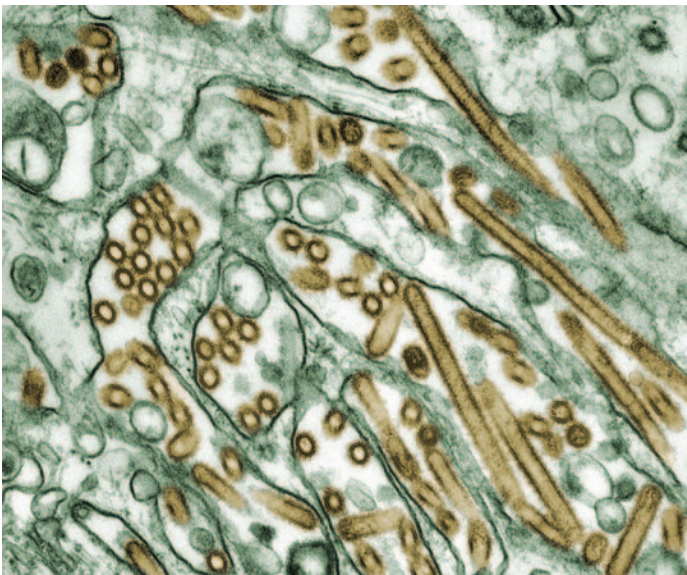
Currently, the United States has approximately 970,000 staffed hospital beds and 100,000 ventilators, with three-quarters of them in use on any given day. As a result, shortages could occur in critical areas such as ventilators, critical care beds and drugs to treat secondary infections. The ability of facilities to maintain strict infection control would be challenged. Pandemic flu would be widespread and would restrict the flexibility to shift resources to other communities. Surge capacity is a particular concern for the services of health care personnel, especially nurses, epidemiologists and laboratory technicians. In many regions of

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the country, surge capacity would be further limited by the likelihood that health care personnel might themselves be sick or be called upon to care for sick family members at home.

Communities and health care facilities may have to look to other facilities to hold the sick and adopt diversion strategies for non-emergency patients. Additional hospital bed capacity may be created by setting up field hospitals and using auxiliary sites such as shelters, schools, religious facilities, nursing homes, hotels and daycare centers.

Photo courtesy of the  
Centers for Disease Control and Prevention (CDC)



Avian influenza A viruses do not usually infect humans; however, several instances of human infections and outbreaks have been reported since 1997. When such infections occur, public health authorities monitor these situations closely.

Wide variations exist among communities in the ability of local officials to cope with an outbreak, with smaller jurisdictions likely at a disadvantage. Some experts have suggested that government facilities and health care personnel could provide a significant surge capacity, but the medical capacity of the Departments of Defense and Homeland Security and Veterans Affairs also is limited. Policymakers may need to adopt a strategy to encourage home-treatment for those with less serious symptoms to reduce overcrowding in hospitals and also to contain the spread of pandemic flu by reducing the number of contacts between infected and non-infected individuals. A home treatment strategy would require a system to provide training and support for home caregivers.

More money is also needed for education and communication programs to alert businesses, schools and citizens

about what they should be doing to prepare and protect themselves from the pandemic.

The majority of large businesses say they are working on a pandemic preparedness plan, but have not completed and have not started to stockpile the essential supplies that would ensure they can continue to operate through the pandemic. Utilities are still working out how they can continue to provide a service with a significantly depleted staff and perhaps shortages of essential materials.

### **Federal Guidance**

Many states are still looking to the federal government for answers to a wide range of questions concerning pandemic planning and preparedness. There is ambiguity about grant funding, with many states saying they are unclear about what monies are available and how they can be spent.

A majority of states are looking to the federal government for answers to legal



questions and more. For instance, because of the expected shortfall in tried and tested vaccines, many are asking what the legal consequences might be of using new unlicensed vaccines that may have been rushed to market. As a result, many states are planning emergency legislation to protect themselves. Other officials said they want to know if the federal government will issue federal guidelines on who gets vaccinated.

State officials also want to know if there are going to be federal guidelines as to when patients should be taken off ventilators, when schools should be closed, quarantines imposed, and so on.

States also want more guidance on stockpiling. They need to know what they can expect from federal sources and what they should be stockpiling and how they are going to pay for this. Many states are already stockpiling personal protection equipment such as face masks, gowns, gloves, soap dispensers and disposable towels. Several states have said they will not start to stockpile until we enter the pre-pandemic phase, by which time many of the supplies they need may already have been taken by others.

## **Summary**

Health officials across the country and at every level of government are working on pandemic preparedness planning so they are ready and able to mitigate the impact when bird flu hits the United States.

## **Three Issues**

- The population at large needs to be better prepared to cope with a pandemic that could last many months. Individuals and households need to know what supplies they will need, what precautions to take, how to take care of family members who become sick, and what to do to limit the spread of the disease.
- Every business in the country needs a pandemic preparedness plan. This must detail how the business will continue in operation if a large percentage of staff falls ill and what essential supplies need to be stockpiled to ensure the business can continue to operate if deliveries are delayed. All large employers also must have their own vaccination plans and supplies of vaccine both to ensure their staff is protected and to relieve the health authorities of this burden. This will help ensure the well-being of the staff and allow health personnel to focus their efforts and funding elsewhere.
- Health authorities need more guidance and funding from federal and state resources. Guidance is needed to advise them on what funding is available and what it can be used for, as well as what supplies and equipment might be provided from the SNS and when they might be made available. Above all, adequate funding is necessary to ensure that comprehensive pandemic preparedness plans can be produced and implemented and that essential supplies and equipment can be procured for stockpiling.

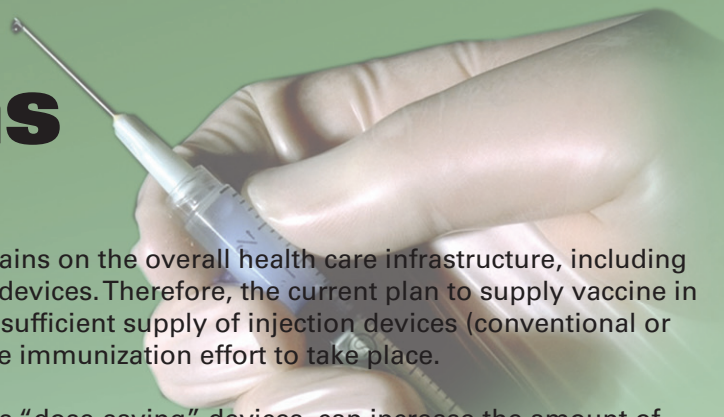
## **Department of Defense Facilities**

The Department of Defense has more than 50 military hospitals and medical centers in the continental United States, providing more than 3,500 staffed beds for active-duty personnel and their dependents, as well as military retirees and their families. On any given day, about 70 percent of those beds are occupied, although many are used by patients seeking elective or non-urgent care that could be deferred if beds were needed for flu victims. In addition, DoD operates more than 400 outpatient clinics. In the event of a pandemic, those facilities might be able to treat ambulatory cases, thus providing some additional capacity for treating flu victims. Staffing could be supplemented by calling up medical personnel in the National Guard and Reserves. However, that approach, rather than adding to the total number of medical personnel available nationally to treat avian flu cases, would instead merely shift medical personnel from the civilian to the military sector.

## **Facilities Operated by the Department of Veterans Affairs (VA)**

The Department of Veterans Affairs' 157 hospitals provide more than 18,000 acute care beds. The VA also operates more than 860 outpatient clinics. Those facilities serve 7.5 million veterans who are enrolled in the VA medical system. Although most of those facilities currently operate at high occupancy or utilization rates, in the event of a pandemic outbreak, treatment of many patients who were seeking elective or non-urgent care could be deferred if VA facilities and personnel were needed. In addition, VA could increase its inpatient capacity by reassigning personnel and adding beds where possible. However, VA is likely to be faced with an influx of veterans seeking treatment for avian flu, who may quickly fill VA hospitals to capacity.

# Syringe Solutions



Any pandemic situation will put tremendous strains on the overall health care infrastructure, including the availability and proper disposal of injection devices. Therefore, the current plan to supply vaccine in multi-dose vials will require the stockpiling of a sufficient supply of injection devices (conventional or dose-saving) to allow for an efficient broad-scale immunization effort to take place.

Injection devices with less dead space, known as “dose-saving” devices, can increase the amount of useable vaccine drawn from a multi-dose vial, allowing for greater distribution of the vaccine. In fact, clinical testing and customer-documented experience have shown that the available vaccine can be extended by 7 percent to 10 percent through the use of these devices. The US Pharmacopoeia guidelines call for vaccine companies to overfill multi-dose influenza vaccine vials by approximately 15 percent.

Therefore, the use of injection devices with dose-saving capabilities, and thus stockpiling them for pandemic preparedness efforts, is a relatively low-cost solution to maximizing flu vaccination efforts. Preliminary, conservative estimates show that adoption of these simple, dose-sparing devices could result in savings of \$12.6 million per 50 million vaccinations while improving coverage by at least 3 percent.

Syringes that are pre-filled with single-dose influenza vaccine also minimize overfill and associated vaccine waste. Becton, Dickinson and Company (BD), a supplier of medical equipment and supplies based in Franklin Lakes, N.J., offers several such devices in its portfolio, including those that comply with global safe injection policies. BD is also developing new technologies with even greater dose-saving potential.

When the flu pandemic outbreak occurs, it is estimated that the manufacturing of a suitable vaccine would take an additional six to eight months after the pandemic viral strain is identified. Therefore, the first line of defense in preventing spread would be the use of antiviral drugs.

Rapid diagnostic test devices can confirm influenza in 15 minutes or less, and can help ensure that:

- Antivirals are used only where appropriate (confirmed flu cases).
- Administered timely (antivirals are only effective when administered within the first 48 hours of the onset of symptoms).
- Selective confirmatory testing can be conducted, as subtyping tests require significantly more time and skill.

Rapid diagnostic testing and confirmation of infection with the flu allows for rapid treatment, which can reduce the severity of the symptoms, shorten the duration of the illness, and reduce the time period when those who are ill with influenza are infectious to others. It is necessary that an excellent specimen be collected. The best specimen for testing will depend upon the availability of collection devices for nasopharyngeal aspirates and nasopharyngeal washes. Therefore, the stockpiling of diagnostic test devices will require the stockpiling of an equivalent supply of human respiratory specimen collection devices to ensure the excellence of the test results.

BD is a leading diagnostic company with products available to rapidly detect the presence of the flu virus and identify type A or type B in less than 15 minutes. Identifying a patient who is infected with the flu virus (as opposed to an illness with similar symptoms), as well as identify Type A or Type B can help guide health care providers in the selection of appropriate treatment.

# Appendix 1

## **Clinic Supply & Equipment Checklist**

*The Michigan Department of Community Health and Pandemic Preparedness has compiled this checklist for organizations to use to prepare for a potential pandemic.*

### **Equipment Needs:**

- ☐ Computers, printers, power strips, cables
- ☐ Refrigerator, thermometer for refrigerator, water bottles
- ☐ TVs, VCRs/DVD players, Fax machine
- ☐ Copier

### **General Supplies**

- ☐ Tables, chairs, portable toilets
- ☐ Pens, pencils, colored markers
- ☐ Clear tape, stapler and staples, paper clips
- ☐ Paper, sticky notes, envelopes
- ☐ Paper towels, tissues, trash bags
- ☐ Garbage containers, food and drink, ID badges for staff
- ☐ Scissors, standard first aid kit, scale for child weighing
- ☐ Copies of relevant emergency plans, such as AH, CD Annex, Appropriate Appendix, SNS plan
- ☐ Immunization records, VISs disease-specific fact sheets
- ☐ Colored tape (for arrows on floor)
- ☐ Signage for each station, rope barriers
- ☐ Duct tape, informational signs (mainly triage, education and post-vaccination)
- ☐ Cleaning supplies, paper towels, education videos/DVDs (+ spares)
- ☐ File boxes, folders, clipboards

### **Vaccine Administration Supplies**

- ☐ Cooler, thermometer for cooler, cold packs
- ☐ Vaccine (pandemic or regular)
- ☐ Needles; 22-25g, 1", 1.5", few 2" or bifurcated
- ☐ Syringes
- ☐ Sharps containers, adhesive bandages, exam gloves
- ☐ Cotton balls, antiseptic (70% EtOH or other)
- ☐ Alcohol swabs
- ☐ Paper tape, privacy screens, cots
- ☐ Anti-bacterial gels (handwashing)
- ☐ Gauze, bleach solution (1:10) in sprayers

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### ***Communication Supplies***

- ☐ Cell phones, telephones (land line), lists of important phone numbers
- ☐ Two-way radios (800 MHz or other)
- ☐ Phone cables, Internet access (optional)

### ***Emergency Kit***

- ☐ Standing orders for emergencies
- ☐ Inhalants (ammonia or similar)
- ☐ Alcohol swabs
- ☐ Two Epi Pens or Two ampules epinephrine 1:1000 SQ plus needles (tuberculin syringes with 5/8" needles)
- ☐ Two ampules diphenhydramine (Benadryl) 50 mg IM with 3cc syringes and 22g-25g 1" and 1.5" needles
- ☐ Tongue depressors, stethoscope, tourniquet
- ☐ Blood pressure gauge, child and adult cuffs for blood pressure gauge
- ☐ Two thermometers
- ☐ Adult airway, pediatric airway, asthma inhalers
- ☐ Adult pocket mask (1-way valve)
- ☐ Child pocket mask (1-way valve)
- ☐ AED (defibrillator)
- ☐ Aspirin, Tylenol (acetaminophen), insulin
- ☐ Gurney, blankets, pillows
- ☐ Oxygen tank with tubing, IV electrolytes with tubing, flashlights and batteries
- ☐ Biohazard bags, sharps container, emesis basin

**Source: Michigan Department of Community Health Pandemic Preparedness Plan**



## Interview With Noel Harvey

**Director of Research and External Relations  
and Advanced Drug Delivery Becton, Dickinson and  
Company**

By Linda Dickerhoof

### **Dual Roles for One Man**

North Carolina native Noel Harvey can be accused of being many things: a Tarheel, a Blue Devil, a family man, an outdoorsman and even a frequent flier. However no one can ever accuse him of giving less than 100 percent to Becton, Dickinson and Company (BD) every day. This is easily proven: Noel Harvey doesn't just have one job title, but two. He wears two hats within BD, a medical technology company that serves health care institutions, life science researchers, clinical laboratories, industry and the general public; and has been named as one of "America's Most Admired Companies" by FORTUNE magazine.

Harvey divides his time between serving as the director of research and external relations for the parent company of Becton, Dickinson and Company and director of advanced drug delivery for Research Triangle, N.C.-based BD Technologies, a subsidiary of BD that provides basic research and development support for improving manufacturing and process methods, and to serve as a window on future technological trends.

While Harvey has been with BD for more than 13 years, he has only served in his current dual role for a little over eight months. He joined BD in 1993 as a senior scientist, and worked his way up to director of advanced drug delivery for BD Technologies, a position in which he leads a team of 45 people — a diverse set of scientists and engineers working on issues spanning immunology, pharmaceuticals, mechanical engineering, chemical engineering, molecular biology, pilot manufacturing and clinical trials. Once the company realized that a lot of what Harvey was in charge of had larger public health applications, they asked him to take on the role of external relations to help determine exactly what BD is doing that could be applied to other external organizations, including government agencies.

While his dual role within BD requires that Harvey travel so often that this interview with *Homeland Defense Journal* was conducted via phone while he was in France, he wouldn't have it any other way. "I am in a unique position where I can look at front end technologies and see how

*continued on next page*



Noel Harvey

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*from page 11*

they could be applicable to public health. Being able to see this connection is very gratifying, he states.”

### ***Responding to the Needs of the Customer***

“The Advanced Drug Delivery group is responsible for developing base technology platforms for the entire company — and then linking these platforms with needs that we hear from both our customer base and outside entities such as government agencies,” is how Harvey explains how his two jobs fit together. A lot of what the Advanced Drug Delivery group is working on has biodefense capabilities, such as a project focusing on the next generation of anthrax vaccines. As a matter of fact, Harvey’s research on anthrax vaccines can be read in “Protective Immunization Against Inhalational Anthrax: A Comparison of Minimally Invasive Delivery Platforms,” which appeared in the *Journal of Infectious Diseases* in 2005.

However, many projects that the Advanced Drug Delivery group works on start with defense applications and then applied to public health. “For instance,” Harvey said, “we worked with the U.S. Army Medical Research Institute of Infectious Diseases on a project enhancing exotic vaccines and ended up taking this project further to see how the platforms could be used for more general public health purposes.”

A recent project that Harvey is very proud of is an agreement announced in late 2005, in which sanofi pasteur, the vaccines business of the sanofi-aventis Group, licensed the BD Micro-Delivery System for use in the administration of sanofi pasteur’s human vaccine products. The BD Micro-Delivery System easily and reliably delivers vaccines to the skin, and has the potential to increase a patient’s acceptance of vaccine, as well as enable vaccination of more people with less vaccine.

When asked about his future, Harvey can only predict that he will be doing a lot more traveling. He’s not complaining though, because “This job is a lot of fun!”

### ***About the Author:***

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# **State Pandemic Preparedness Survey Report**

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# State Pandemic Preparedness Survey Results

## *Executive Summary*

### **Background**

- Health officials worldwide have been warning for some time that a new global outbreak of influenza is inevitable. Avian flu has already spread from the Far East to the Middle East, Africa and Europe. It is believed that in all the cases where humans contracted avian flu, they worked with domestic poultry. This latest form of avian flu — strain H5N1 — is particularly virulent and of the 173 confirmed human cases (as of Feb. 27, 2006) there have been 93 deaths — a 54 percent fatality rate. Experts believe that it is only a matter of time before the disease mutates into a form easily spread by humans and becomes a pandemic.
- On Nov. 1, 2005, President Bush asked Congress for \$7.1 billion in emergency funding to prepare the country for a possible flu pandemic. Of this, \$1.2 billion would be earmarked to buy enough bird flu vaccine for 20 million people, \$1 billion to stockpile antiviral drugs, \$2.8 billion to fund a crash program to speed up vaccine production, and \$100 million for state and local preparedness planning.
- On Nov. 2, 2005, the Department of Health and Human Services (HHS) released its Pandemic Influenza Plan aimed at creating a seamless network of federal, state and local preparedness. It set out the federal government's pandemic responsibilities and provided guidance to state and local partners on the measures they need to take to prepare the nation's health care system for a pandemic.
- On Dec. 5, 2005, state and local health officials embraced plans to hold pandemic preparedness summits in every state over the next few months. All states were urged to have their pandemic preparedness planning completed as soon as possible.
- On Dec. 19, 2005, the U.S. House of Representatives approved \$3.8 billion in funds for pandemic influenza preparedness — almost 50 percent less than the president requested.
- HHS announced on March 1, 2006, that it has ordered an additional 14.15 million treatment courses of antiviral drugs. The Strategic National Stockpile (SNS) has already purchased 5.5 million treatment courses of antiviral

drugs. The HHS aim is to acquire enough antiviral drugs to treat 25 percent of the U.S. population.

- To date, pandemic preparedness summits have been held in 18 states including Alabama, Arizona, Connecticut, Delaware, Florida, Georgia, Kentucky, Iowa, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, Ohio, Rhode Island, Vermont and West Virginia.

## The Survey

The aim of the Pandemic Preparedness Survey was to:

- 1) Identify senior key state officials responsible for pandemic preparedness
- 2) Ascertain each state's level of preparedness planning
- 3) Identify the lead agency in the event of a pandemic
- 4) Identify if equipment and supplies lists are part of the plan
- 5) Identify if there are plans to stockpile equipment and supplies

Of the 50 states, 45 state surveys were conducted — 21 surveys were conducted by telephone interview with the opportunity to ask supplementary questions, and 24 surveys were conducted electronically after the respondents asked for an electronic survey form. The electronic survey form also allowed respondents to expand on their answers.

We believe the overall response rate of approximately 90 percent is highly satisfactory in view of the seniority of the officials being targeted and the considerable pressures on the time.

### **Methodology**

A list of all senior state health officials was compiled concentrating on state health officials and state epidemiologists. In each case, we attempted to speak with one or other of these officials. If we were successful, we either interviewed the officials directly or, if this was not convenient and if they requested it, we e-mailed them an electronic survey of all the agreed questions together with the opportunity to expand on their answers if they wished.

When these officials were not available, or if we were directed by them to other officials, we again conducted the survey over the telephone as our first option or offered them the chance to respond by answering the electronic survey.

All officials contacted were either the most senior state health officials or the head of the division directly responsible for producing the pandemic preparedness plan. These officials included environmental health directors, directors of emergency preparedness, directors of hospital preparedness, directors of public health preparedness and bioterrorism coordinators.

The survey was conducted between Feb. 14 and Feb. 28, 2006. The survey results are compiled from the verbal or written comments of 45 respondents. This represented responses from 44 states and Washington, D.C.

Note: Initially, it had been planned to interview senior health officials in a number of major urban conurbations as part of this survey. We did obtain a response from one major West Coast city that was responsible for its own pandemic preparedness planning. In most cases, however, their pandemic preparedness planning is incorporated into the plan of the state in which they were located. Because of this, the one response that was received was not included in this survey.

### **Key Findings**

- Almost three quarters (73 percent) of states have pandemic preparedness plans that are either complete (22 percent) or nearing completion (51 percent). In all these cases, officials stressed that the plans were ‘living’ documents kept under constant review. Of the other states, 22 percent have a plan in place although it is still being developed.
- All respondents said they are seeking HHS pandemic preparedness funding or grants.
- Many states had specific activities planned for this funding while several others said they were not clear what funding was available or what grant money could be used for. They were still seeking federal guidance and/or clarification on this.
- Most states (87 percent) said their plans detail specific sites where the public can be treated in the event of a pandemic. However, 13 percent of states said their plans would not detail this information at this time for security reasons although the public would be told as and when necessary.
- Most states (91 percent) said their plan lists the equipment and supplies they would need to prepare for and manage the pandemic. Fewer than 10 percent of states (9 percent) said their plans would not include this information.
- Most states (60 percent) said they would receive vaccines and antivirals

## Special Report Pandemic Preparedness

from the federal government. Some states (15 percent) said they had not been told what equipment and supplies might be available from the federal government while 10 percent said they were unaware that the federal government might be offering equipment and supplies and a further 10 percent said they did not think they would receive anything from the government.

- Ninety-three percent of states said their plans included the stockpiling of equipment and supplies while 7 percent said they did not have provision for this in their plans.
- Multiple major agencies at the state level are involved in the preparedness plan. More than three-quarters (78 percent) said all or most state agencies are involved while 18 percent of states said the Department/Division of Health was the major agency involved with other agencies such as the National Guard and State Police playing an albeit important but supportive role.
- In most states (78 percent), the lead agency in the event of a pandemic would be the Department/Division of Health. In 22 percent of states, however, the lead would be shared by a combined Health/Emergency Management control although the senior official would be from the Department of Health.
- Most states (95 percent) believe the U.S. Centers for Disease Control and Prevention (CDC) will be essential in their preparedness plans. Also listed as essential are the HHS, Department of Homeland Security (DHS), Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA).
- Almost three-quarters of states (73 percent) said they believed HHS grants will also help them increase their seasonal influenza coverage while 27 percent did not think they would.
- There is clearly a long way to go before large-scale employers are prepared to handle a pandemic. All states said large employers in their states were not prepared to handle a pandemic. Almost a half (49 percent) are “not very prepared,” 44 percent are “somewhat prepared,” and 7 percent are “not prepared at all.”



## The Survey

What is the status of your state's pandemic plan?



### 1. What is your level of pandemic preparedness?

Almost three quarters (73 percent) of states have pandemic preparedness plan that are either complete (22 percent) or nearing completion (51 percent). In all these cases officials stressed that the plans were “living” documents kept under constant review. Of the other states, 22 percent have a plan in place although it is still being developed, and 4 percent said they had completed an initial plan, but updates were ongoing.

### 2. Are you seeking HHS pandemic preparedness funding/grants?

All respondents said they are seeking HHS pandemic preparedness funding or grants.

### 3. If YES, can you describe specific activities planned for this funding?

Many states had specific activities planned for this funding while several others said they were not clear what funding was available or what grant money could be used for. They were still seeking federal guidance and/or clarification on this.

Listed are specific activities earmarked for this funding. Each bullet indicates a single response (duplicate responses have not been included).

- Outreach, stockpiling personal protection equipment (PPE), improving IT systems for vaccine management and patient tracking
- State summit, regional pandemic flu planning workshops, county summits, local assessment of pandemic flu preparedness, local completion of pandemic flu checklist
- Planning, preparedness
- Funding of a planning coordinator specific to pandemic flu
- Educational items and programs; antivirals, masks, hand gel stockpiles
- Surge capacity exercising plans, communications with private sector, antivirals
- Stockpile of equipment and supplies, training and education exercises
- Need to develop operational detail for plan and engage multiple community and health partners
- Alternate care facilities planning, mass fatalities planning, stockpiling of medical supplies, critical and acute care planning, public education and assessment of public expectations, planning to reach vulnerable populations,

## Special Report Pandemic Preparedness

development of two-way secure communications between public health and medical providers,  
development of epidemiology field response teams

- Expanding planning at the local levels, further development of local health department plans, addition of plans for business communities
- Continued development of state and local plans, exercises, public information campaigns; and whatever requirements the feds impose
- Medical surge capacity
- Development of sub-state pandemic influenza plans that coordinate with the state plan
- Holding exercises
- Local preparedness planning, surge capacity, public awareness, public participation, continuity of operations
- Additional equipment for health emergency operations center and communications call center
- Finishing emergency operations center at Department of Health, construction of new viral lab, education and communications i.e. regional forums involving community and business leaders, creation of antiviral stockpile for key personnel
- Training and preparedness
- State purchase of antivirals and ventilators
- Planning preparedness, stockpiling supplies
- Planning, training, cross-border cooperation and coordination, enhanced influenza vaccination coverage levels, emergency planning for distribution of unlicensed vaccines
- Training and supplies
- Developing pediatric sentinel influenza surveillance, developing educational material
- Funding for vaccines and antivirals if possible
- Emergency stockpile of antivirals
- Supplies, training, preparedness, tracking system for vaccine and antiviral medication

When specific activities had not been earmarked, the following reasons were given:

- HHS has not identified what services or supplies may be purchased with the funds
- Awaiting guidance document
- We need to see the CDC guidelines before we can respond
- The funding will be based on the guidance once it arrives. We are planning on using the funding to conduct planning sessions throughout our region and to conduct initial exercises
- No details at this time
- No specifics yet
- We are awaiting final guidelines from the CDC on what will be eligible for funding
- Dependent on guidelines to be released
- Not finalized
- Not sure yet what funding is available
- Not sure yet what we can apply for
- Not defined yet

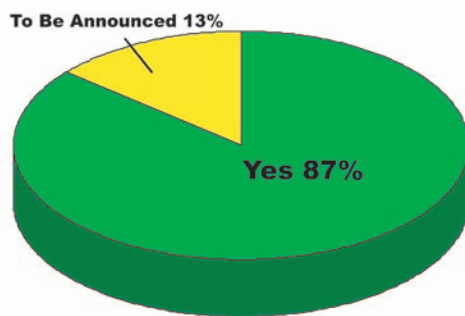
#### **4. If NO, why not?**

- We are still developing our activity plan for requested funding
- Waiting for guidance
- Grant guidance has not been released by HHS defining how the funds can be used

#### **5. Does/will the plan detail specific sites where the public can be treated?**

Most states (87 percent) said their plans detail specific sites where the public can be treated in the event of a pandemic. However, 13 percent of states said their plans would not detail this information at this time for security reasons, although the public would be told as and when necessary.

**Have sites been selected for treatment of the public?**



Specific answers included:

- Local health departments have developed and are updating mass prophylaxis plans. Hospitals are updating emergency plans to cover a pandemic
- We use an all-hazard approach. Treatment facilities for mass vaccination/prophylaxis are in another plan and only referenced in the Pandemic Flu Plan
- Local plans identify alternative care and triage sites
- No. This will be done at the community level
- Vaccination sites are in place. Treatment sites vary depending on the disease and will be communicated as the pandemic progresses
- Yes, the plan will detail specific sites and the sites will be publicized as necessary
- In development
- Yes, however that information has not been made public
- At the local level
- Local health districts are responsible for identifying appropriate public facilities to serve as mass vaccination sites/alternate treatment centers
- Facilities that can be used as additional vaccination centers have been identified
- 11 locations have been identified, all secure facilities with electrical back up and temperature control
- There will be at least one immunization center in each county
- Triage and dispensing sites are being established
- We are setting up special medical needs shelters, public mass dispensing sites and mass immunization clinic capability in each public health district
- Additional walk-in care centers and mass vaccination centers will be established
- At least one location per county for mass vaccination, also establishing temporary morgues and additional vaccine storage facilities

### 6. Does/will the plan list equipment and supplies that will be needed?

Most states (91 percent) said their plans list the equipment and supplies they would need to prepare for and manage the pandemic although several states declined to list specific equipment and supply items. Fewer than 10 percent of states (9 percent) said their plans would not include this information.

The items mentioned most frequently included vaccines and antivirals and equipment needed for storage and administration (i.e. coolers, needles, syringes, alcohol swabs, sharps disposal units); personal protection equipment (masks, face shields, gloves, gowns, soap, disposable towels etc.).

Some states have already compiled very detailed lists including items ranging from ventilators and respirators to computers and ropes for line control.

A complete list of responses including all equipment and supplies mentioned is given in Appendix 1.

### 7. What equipment and supplies do you expect to receive from the federal government?

Most states (60 percent) said they would receive vaccines and antivirals from the federal government. Some states (15 percent) said they had not been told what equipment and supplies might be available from the federal government while 10 percent said they were unaware that the federal government might be offering equipment and supplies and a further 10 percent said they did not think they would receive anything from the government.

Other than vaccines and antivirals, other items mentioned were:

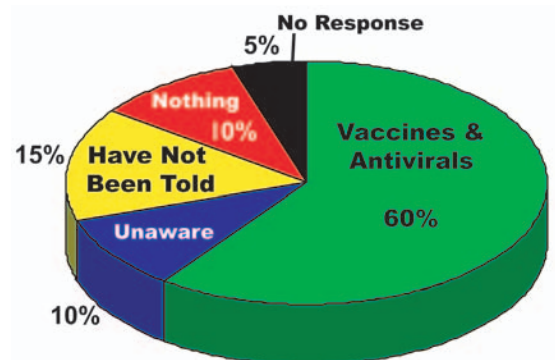
- Medical supplies and assets from the SNS
- Funding for general application to meet identified gaps
- National Vaccine Adverse Event Reporting System (VAERS), medical supplies for hospital support
- Ventilators
- SNS supplies and PPE
- Health care equipment to assist with surge needs

Other comments received were:

- Federal agencies have not stipulated what equipment and supplies will be available from the federal government
- We are currently in discussion with local agencies as well as CDC and Health Resources and Services Administration (HRSA) regarding requirements



Does your State Plan include specific equipment and supplies?



What equipment and supplies are you expecting from the federal government?



- Don't expect any equipment or supplies from the federal government
- Unaware the federal government is offering equipment and supplies
- None
- Unclear at this time, we have not been informed
- We need to see the federal CDC guidance
- We do not expect any direct receipt of equipment and supplies
- Not much, some materials from the SNS
- Not sure at this time

## **8. Does/will the plan involve stockpiling equipment and supplies?**

Ninety-three percent of states said their plans included the stockpiling of equipment and supplies while 7 percent said they did not have provision for this in their plans. While several states declined to be specific about what equipment and supplies might be stockpiled, the following responses were received:

**Does your plan include stockpiling?**



- We will be stockpiling but it depends on local health district and hospital needs. Will include supplies to operate a mass prophylaxis clinic and respond to surges in hospital demand based on a pandemic
- Still in the process of evaluating state and local needs
- We presently have a limited supply of Tamiflu, gloves, masks and thermometers for the public
- Yes, we will be building a stockpile but still assessing needs
- Plan on a very limited stockpile. We have some pharmacy stockpiles that are being rotated and being managed by the pharmacies
- We will provide a list of equipment and supplies for stockpiling but we are still conducting GAP analysis
- Medications, ventilators, PPE
- Still to be decided
- Vaccine administration supplies, hand antisepsis products, soaps, hand towels, masks, eye protection, face shields, gloves, gowns and so on
- Vaccines and antivirals
- Assessing feasibility of interim stockpile of antivirals
- Stockpiling antivirals if we can get them
- Considering establishing an antiviral stockpile
- Waiting for national guidelines regarding the stockpiling of antivirals; may create our own stockpile
- Looking at leasing refrigerated trailers for stockpiling antivirals and vaccines

### **9. What major agencies at state level are involved in the plan?**

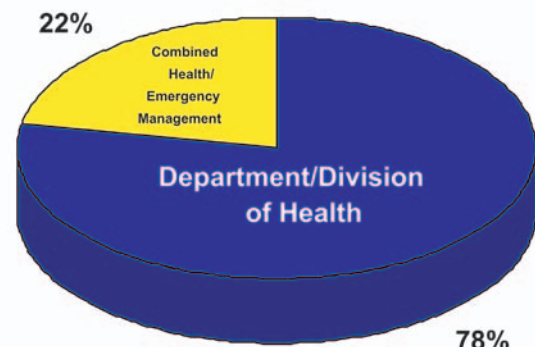
Multiple major agencies at state level are involved in the preparedness plan. More than three-quarters (78 percent) said all or most state agencies are involved, while 18 percent of states said the Department/Division of Health was the major agency involved with other agencies, such as the National Guard and State Police playing an albeit important but supportive role such as providing security, transport of vaccines etc. Other than Health, specific agencies, departments mentioned were:

- Governor's Office
- Emergency Management
- Homeland Security
- Education
- Transport
- Agriculture
- Fish and Wildlife
- State Police
- National Guard
- Attorney General

### **10. Which agency at the state level would be the lead agency in the event of a pandemic?**

In most states (78 percent), the lead agency in the event of a pandemic would be the Department/Division of Health. In 20 percent of states, however, the lead would be shared by a combined Health/Emergency Management and/or Homeland Security team, although the senior official would be from the Department of Health. In one instance Health would be responsible for the pandemic and Homeland Security for the Continuity of Operations (COOP).

Only one state said the lead would be taken by the Department for Emergency management although it would defer to Health in all medical matters.



**Which state agencies will lead response?**

### **11. Which federal agencies are essential parts of your preparedness plan?**

Most states (95 percent) said the CDC will be essential in their preparedness plans. Also listed as essential were the HHS, DHS, FDA and the USDA.

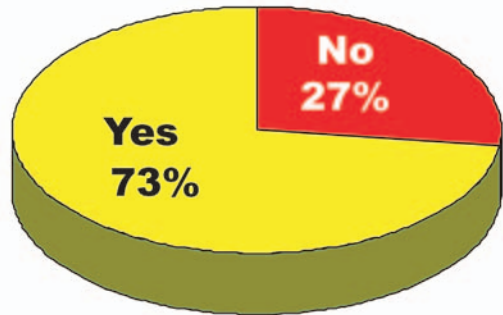
Other federal agencies listed were:

- SNS    ■ HRSA

## **12. Do you think HHS grants will also help you increase your seasonal influenza coverage?**

Almost three-quarters of states (73 percent) said they believed HHS grants will also help them increase their seasonal influenza coverage while 27 percent did not think they would.

**Do you think HHS grants will also help you increase your seasonal influenza coverage?**



The following additional comments were made:

- It will allow enhanced surveillance
- Our plans to fund a flu coordinator would allow for seasonal as well as pandemic flu planning
- It will assist with training, educational and public health messages to the public. Additional funds are needed for increased vaccines to cover special needs population, which now includes impoverished population
- Only for communicating public education messages to the public. The vaccine distribution system is still broken. Until that gets fixed, seasonal coverage will suffer
- Fear of a pandemic will help increase citizen use of seasonal influenza vaccine
- Not unless we have a more coordinated approach to the distribution of annual influenza vaccine
- Must see CDC guidelines
- No guidance yet, so can't answer
- Sub-state systems that will be developed will build capacity to respond to any public health incident
- Do not know until the grant guide is released
- How much will depend on the size of the grants

**Are major state and business employers prepared to handle a pandemic?**



## **13. Do you think large employers in your state are well prepared to handle a pandemic?**

There is clearly a long way to go before large-scale employers are prepared to handle a pandemic. All states (100 percent) said large employers in their states were not prepared to handle a pandemic. Almost a half (49 percent) are “not very prepared,” 44 percent are “somewhat prepared,” and 7 percent are “not prepared at all.”

### **14. Are you working with them to ensure self-reliance (i.e. vaccinations)?**

All states said they are already or will be working with businesses to help them move toward self-reliance. Specific responses were:

- We are providing information sessions on the consequences of a pandemic and basic preparedness strategies
- All major employers were involved in a large-scale table top exercise in November 2005. Individual meetings are now underway with them and funeral directors
- Have plans to engage their involvement
- Limited interaction so far – just beginning
- After the 2/22/06 summit
- We are in the very early stages of helping businesses plan
- We have aggressively engaged local businesses in pandemic preparedness. We see them as critical partners in this process. Many have developed detailed global plans. Others are in the early stages, but understand the importance of this task
- We are working with major employers in various locations throughout the state
- We are currently reaching out to our business community and our federal partners
- In progress
- A major focus of our current effort
- Guidance to businesses on current vaccination recommendations for seasonal flu are already in place

## **Overall Summary and Conclusions**

- The majority of states have pandemic preparedness plans that are either complete or nearing completion. No state responded that it did not have a pandemic preparedness plan in place.
- All respondents said they are or will be seeking HHS pandemic preparedness funding or grants and many have already earmarked how some or all of the money will be used. There does seem to be some confusion among some states about what funding is available and what it can be used for.
- The majority of states said their plans included lists of equipment and supplies, although there is a wide variation in the degree of detail given. Some states provide very detailed lists while a few offer no details at all at this stage.
- Most states plan to stockpile equipment and supplies but, again, there is a wide disparity among states as to what needs to be acquired, and 7 percent of states said they did not have any provisions to stockpile.
- The lead state agency in the event of a pandemic would be the State's Department/Division of Health with the CDC considered the most important federal support agency.
- As far as the states are concerned, large employers are not yet prepared to handle a pandemic. All states said large-scale employers range from "not prepared at all" to "somewhat prepared." All states, however, said they are working with businesses to improve this situation.

## Appendix 1

This is the complete list of responses when asked: Does/will the plan list equipment and supplies that will be needed? Each bullet point is the response from one state. Several states declined to answer this question.

- Federal agencies have not stipulated what equipment and supplies will be available from the federal government
- SNS
- We're in discussion with local agencies, as well as CDC and HRSA
- Vaccine, anti-virals
- None
- Unaware the federal government is offering equipment and supplies
- Vaccine, antiviral agents and assets from the SNS
- None
- Funding for general application to meet identified gaps
- Vaccines, antivirals, national VAERS, medical supplies for hospital support
- None
- Vendor managed inventories of vaccine, anti-viral medications, antibiotics, and perhaps some ventilators
- Unclear at this time, we have not been informed
- We need to see the federal CDC guidance
- We do not expect any direct receipt of equipment and supplies
- SNS, Tamiflu, vaccine, some PEP
- Not much, some materials from SNS
- SNS, health care equipment to assist with surge needs
- Not sure at this time
- Unknown
- Those stockpiled in the SNS
- Vaccine and antivirals
- TBD
- Vaccines/anti-virals from SNS or bought with fed funds
- medical resources from SNS
- Vaccines and maybe anti-virals
- Vaccines from SNS
- Vaccines
- Vaccines
- Vaccines, maybe anti-virals, medical supplies from SNS
- Vaccines and anti-virals
- Vaccines and anti-virals
- Vaccines
- Vaccines and anti virals
- Vaccines
- Vaccines anti-virals
- Vaccines and anti-virals
- Vaccines
- Vaccines
- Vaccines and anti-virals
- Vaccines
- Vaccines and anti-virals
- vaccine clinic supplies from SNS
- Vaccines, anti-virus
- Vaccines
- Vaccines, maybe anti-virals



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